

NRO REVIEW COMPLETED

CLASSIFIED MESSAGE

SECRET

DATE

1951Z 09 APR 63

DIRECTOR

TO

25X1A

FROM

ACTION: OSA (1-2-3-4-5-6-7-8-9-10)

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TOR: 2120Z 09 APR 63

ROUTINE

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ATTN:

REF: WEEKLY TWX REPORT

SPECIAL STATUS REPORT ON SPORADIC DATA INVESTIGATION AS OF MONDAY, 8 APRIL 1963.

PHASE I - DRT INVESTIGATION. THE COLLIMATOR AND BEAM SPLITTER WERE SOLIDLY MOUNTED AND REALIGNED ON SATURDAY, 30 MARCH. IMAGE QUALITY OF STATIC RUNS CONDUCTED BOTH SATURDAY AND MONDAY WERE POOR AND SHOWED EVIDENCE OF A DRT STATIC FOCUS SHIFT. AN AUXILIARY OPTICAL FLAT WAS MOUNTED IN FRONT OF THE 1ST INTERMEDIATE MIRROR AND A SERIES OF DYNAMIC AND STATIC TESTS SHOWED DEFINITE QUALITY IMPROVEMENT WHEN THE 1ST INTERMEDIATE MIRROR WAS NOT IN THE OPTICAL SYSTEM. REMOVING OF THE FLAT INTRODUCED ASTIGMATISM. ON 3 APRIL, FURTHER TESTING ON UNIT 2 CEASED AND THE DRT WAS OPTICALLY REALIGNED AND THE 1ST AND 2ND INTERMEDIATE MIRROR ASSEMBLIES WERE CLAMPED AND WEDGED IN THE CENTER OF FORMAT POSITION, IN PREPARATION FOR ACCEPTANCE TESTING OF UNIT 1.

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GROUP 1
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TARGET DRIVE. ADDITIONAL INSTRUMENTATION IS BEING EMPLOYED TO DETERMINE ACTUAL VELOCITY ACHIEVED VERSUS COMMANDED VELOCITY.

PHASE II - DRT PHOTO TESTING. AS A RESULT OF THE PRESENTATION MADE AT THE SE MEETING AND THE AGREEMENTS REACHED, ACCEPTANCE TESTING OF UNIT 1 COMMENCED ON WEDNESDAY, 3 APRIL BY UTILIZING THE MIRROR PREVIOUSLY INSTALLED ON UNIT 2. PHOTO TESTING IS BEING CONDUCTED ON UNIT 1 USING A 3.2 TO 1 CONTRAST TARGET WITH SLIT 7 (0.265 INCHES, 1/200 SECOND AT NOMINAL V/H). BOTH STATIC AND DYNAMIC ATMOSPHERIC PHOTO TESTS INDICATED GOOD RESULTS. A VACUUM FOCUS RUN WAS THEN CONDUCTED USING SLIT 3 (0.66 INCHES, 1/800 SECOND AT NOMINAL V/H) WITH MICTURATELY POOR RESULTS. A SUBSEQUENT ATMOSPHERIC THROUGH FOCUS RUN WAS THEN CONDUCTED AND INDICATED POOR TARGET QUALITY AND ASTIGMATISM. THE AUXILIARY FLAT WAS INSTALLED AS PREVIOUSLY DESCRIBED AND THE PHOTO TESTS INDICATED THE SAME IMPROVED IMAGE QUALITY. IT WAS EVIDENT FROM THIS THAT THE AUXILIARY FLAT, MOUNTED IN FRONT OF THE 1ST INTERMEDIATE MIRROR, IS REQUIRED FOR PHOTOGRAPHIC ACCEPTANCE TESTING OF UNIT 1 TO MEET THE SCHEDULED ON-DOCK DATE OF 11 APRIL. A PRE-SHAKE PHOTO BASE-LINE WAS CONDUCTED IN ACCORDANCE WITH THE REVISED ATS 49976 AND ATP 49985 AND A FIGURE OF MERIT OF 82 LINES WAS ACHIEVED. THE POST-SHAKE PHOTO TEST CONDUCTED PER REVISED ATP 49985 GAVE A FIGURE OF MERIT OF 77 LINES REFLECTING POOR TARGET QUALITY. UNIT 1 WAS THEN REALIGNED IN THE DRT AND THE RESULTING STATIC PHOTO TESTS SHOWED DEFINITE IMPROVED QUALITY.

IT IS NOW PLANNED TO FURTHER REPEAT THE POST-SHAKE PHOTO TEST

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IN AN ATTEMPT TO ELIMINATE THE TEST EQUIPMENT VARIABLES. A LONGER STABILIZATION OF THE TEST EQUIPMENT AND MIRROR SURFACES AFTER PUMP DOWN AND PRIOR TO COMMENCING PHOTOGRAPHY IS CONSIDERED A POSSIBLE DETERMINING FACTOR AND AN INVESTIGATION OF THIS EFFECT IS NOW BEING PERFORMED.

PHASE III - A/P DRT TESTS. THE PHOTO RESULTS OBTAINED ON THE A/P DRT AFTER WEDGING AND CLAMPING OF THE 1ST AND 2ND INTERMEDIATE MIRRORS WARRANTED USING SIMILAR TECHNIQUES IN BOSTON FOR TESTING OF UNIT 1.

PHASE IV - MIRROR-PLATEN AND SCAN DRIVE SUBASSEMBLY INVESTIGATION. ALL SUBASSEMBLY TESTING TO DATE INDICATES NO MODIFICATIONS REQUIRED. A REPORT ON TESTS BEING CONDUCTED AND CONCLUSIONS IS NOW IN PREPARATION AND WILL BE SUBMITTED BY 26 APRIL.

PHASE V - DATA REDUCTION AND SUMMARY. THE SPORADIC DATE INVESTIGATION HAS LED TO THE FOLLOWING CONCLUSIONS:

1. PAN UNITS HAVE REQUIRED NO MODIFICATIONS NOR ARE ANY INDICATED AS A RESULT OF ANY AND ALL TESTING TO DATE.
2. THE MAJORITY OF DRT TEST PROBLEMS HAVE BEEN IN THE 1ST AND 2ND INTERMEDIATE MIRROR ASSEMBLIES.
3. THE 1ST AND 2ND INTERMEDIATE MIRROR ASSEMBLIES WILL BE ELIMINATED BY MOVING THE OPTICAL TUBE TO THE ALTERNATE POSITION AND PROVIDING FOR CENTER OF FORMAT TESTING ONLY. THE SPORADIC DATA INVESTIGATION WILL BE CONTINUED WITH DYNAMIC TESTING AFTER STATIC REPEATABILITY HAS BEEN ACHIEVED AND DEMONSTRATED.
4. THE PRIMARY OBJECTIVE AFTER SHIPMENT OF UNIT 1 IS TO PROVIDE FOR OPTIMUM MID-FORMAT TESTING AND TO SHIP THE NEXT UNIT BY

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1 MAY.

5. UNIT 4 WILL BE PHOTO TESTED IMMEDIATELY AFTER SHIPMENT OF
UNIT 1 TO PROVIDE A BASELINE FOR CORRECTIVE ACTION.

END OF MESSAGE

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